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Observations, conclusions and opinions expressed in *Virginia Wildlife* are those of the authors and do not necessarily reflect those of the members or staff of the Commission of Game and Inland Fisheries.

COVER: A freshwater, land-locked striped bass and gizzard shad bring artist Duane Raver, Cary, N. C., back to our front cover after a long absence. Welcome back, Duane!

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GUEST EDITORIAL

Above the Fruited Plain

WITH little more than the ax, the rifle, the Bible, and prodigious amounts of sweat, blood, and tears, our forefathers conquered the wilderness. These knights without armor won a continent and left us, their descendents, an inheritance which could be called "the frontier ethic," a particular attitude which advocates manipulation of our resources for the utmost in material gain!

This ethic is best illustrated by the beloved song, "America the Beautiful," written in the late 1800's, in which is described a rich and beautiful land full of hustle and bustle, where alabaster cities gleam; a land of progress and free enterprise with all resources optimumly developed to take care of the material needs of the populace. Can't you just visualize that in the minds of our great grandfathers the phrase, "purple mountain majesties above the fruited plain," meant that all flat lands would be drained, cleared, and farmed? You know, in the early days of this country hunger was no stranger to the struggling pioneer.

We owe a great debt of gratitude to those hardy souls. As evidence of the success of their efforts, we now live in the richest and most powerful country the world has ever known. We are like a country that has raised an army and won a war, and now that the war is over the restless army does not want to quit fighting. The very motivations and attitudes that were so necessary for a winning army are now causing the country harm in the post-war era.

The frontier ethic was spawned of necessity in pioneer America; however, priorities in human needs have changed during the last hundred years.

When is enough enough? Will our frontier ethic cause us to drain, clear, and farm all flat lands; straighten and dredge all our rivers; produce unneeded consumer goods with built-in obsolescence; pollute all our water and the very air we breathe; and manipulate our forests to squeeze every dollar of return per acre at the risk of upsetting the balance of nature with resulting epidemics of forest diseases and parasites?

As a nation we have six percent of the world's population; yet we produce 60 percent of the world's pollution!

Our forefathers dreamed of a world in which their descendents would have an easier time of it. We are there now—if we could only relax and enjoy it.

Man does not live by bread alone. I, for one, believe that the good life should include opportunity for easily accessible outdoor recreation, including fishing, hunting, and the enjoyment of wilderness or wild areas.

The time draws near. The hour is late. We have the good life within our grasp, if only we could develop an ethic more in keeping with our needs during this particular epoch.

The problem is: Can we stop the doomsday machine known as the frontier ethic which so many people call PROGRESS?

—ANDREW H. HULSEY, *Director*
Arkansas Game & Fish Commission

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LETTERS

Wasted Wildlife

FOR the past year, I have conducted a survey on a six mile section of Virginia State Route 3 in Culpeper County. This survey entailed the actual record keeping of all game animals killed on this section of highway. The section of highway observed was from the town limits of Culpeper to six miles east toward Fredericksburg, Virginia.

This is strictly farming country, open pastures for cattle grazing and all the other land cultivated for corn, small grains and hay. Other than fence lines, the cover would be considered light.

The following is a list of animals recorded for the one year period:

Rabbits	31
Skunks	24
Opossums	15
Foxes (1 Red—6 Gray)	7
Groundhogs	4
Squirrels	2
Raccoons	2
Quail	3
Mink	1
Muskrat	1
Undetermined Birds	5
Total	95

To understand the magnitude of the number of animals killed on our roads would be almost impossible, but Virginia has approximately 8600 miles of primary roads alone, not counting the secondaries. Simple math tells us that this would represent approximately 1433 six mile sections of road like the section I surveyed. If all sections accounted for the same figure per six miles, this would represent 121,805 animals. If only one half as many animals were killed, we would still have approximately 60,000 animals killed.

What a waste of our wildlife!

George A. Ramer
Culpeper

WATER-DWELLING ANIMALS SPEAK OUT CONCERNING WATER POLLUTION

By CHARLES BERRY
Biologist, State Water Control Board
Technical Services Division

"SPEAK out!" you say. "Fish, algae, insects and worms are able to speak!"

Yes, they can speak. Not in the conventional way of course, but the animals which live in the water can tell us much about their home.

"How do they communicate?" you ask.

They speak by their presence or absence; by their health, numbers, kinds, and types.

"Okay," you admit. "The 'critters' in the stream should certainly know more about the water in which they live than man does. But how does anyone understand this strange sign language?"

Well, certain people have learned to read some of the signals. These people are the fishermen. They fish in waters where they know (or at least hope) fish live. Fishermen do not spend time fishing water where there are few or no fish.

Now. Can you read the message? A good fish population tells us that the water quality is generally acceptable in that part of the stream, lake or river. A poor fish population is a signal that something is wrong.

It is the role of conservation agencies to detect and stop water degradation before it reaches extremes. One of the ways to discover water pollution in its early stages is to read the sign language of the small inhabitants of a stream. In many cases, algae floating in the water and insects living on the bottom are more sensitive to changing conditions than the fish. They begin to send signals of distress long before the fish population is affected.

How does the water pollution biologist interpret the language of these smaller animals? He does this by recording and deciphering the signals of "indicator organisms." After studying all types of aquatic habitats, biologists have discovered that certain plants and animals make up communities which can be associated with a specific habitat. Some aquatic animals are tolerant to polluted water and are found living there in great numbers. Other animals which are more sensitive to pollution, can be found only in clean water. There is even a community of animals which is associated with water of intermediate quality. This community is known as the facultative organisms. If the biologist collects and identifies the plants and animals from a section of stream, he can learn much about the conditions there. If he finds organisms which are sensitive to pollution, then these animals are indicating that the water from which they were taken is clean. If he finds many pollution tolerant plants and animals, this is a signal that the water quality is poor and the biologist must search for the reason. The absence of animals from a portion of a stream which *should* support an aquatic community of some kind, is an indication to the biologist that a toxic poison which is lethal to the biota is entering the stream. By closely watching the changing stream communities, the biologist can reliably predict the changing water quality.

To learn more about this communication between the water pollution biologist and the water dwelling animals, let us accompany him on a field trip. His mission—to determine the quality of the water by asking the algae, insects, and fish living in the stream.

The biologist begins his "chat" by collecting algae samples. These small plants are inhabitants of all natural waters, and since they are at the base of the aquatic food chain, this is a good place to begin asking questions. Generally, there are two kinds of algae in the biologist's sample. One is the microscopic, floating variety known as phytoplankton; and the other, the larger, filamentous algae usually found growing attached to the bottom.

Although there are many ways to collect the algae, the method which is most often employed is simply the collection of water in a plastic or glass container. Some formaldehyde or other preservative is added to the sample in order to stop the biological activity. This treatment fixes the sample at the time of collection and assures the biologist that he will receive a reliable message from the algae. However, he will not be able to understand the algae's comments until he places them under the microscope back in the laboratory. Here, in a drop of water, he will see a whole new world of tiny creatures.

There are several dozen species of algae which have been classed as pollution tolerant. These generally belong to either the family of blue-green algae or the flagellated algae family. Common representatives of these families are the Euglena and Oscellatoria, two kinds familiar to any high school or college science class.

The pollution sensitive group is made up of several dozen species representing almost every class of planktonic and filamentous algae. A community of algae found in mildly degraded water may consist of representatives of both the pollution tolerant and the pollution sensitive groups.

The biologist must identify the kinds of algae and determine the approximate number of the total population in a measured volume of water. The same volume must be taken from each sample in order to compare one sample with another. The standard measure is an important concept which appears in different forms, as we shall see later.

When translating the algae's comments, the biologist must realize that the dominating presence of one type of algae means very little. However, when he sees that several species of one "indicator community" dominate the sample, he can associate a specific type of water quality with that community.

Furthering the investigation, the biologist questions another group of aquatic organisms in an attempt to receive a more accurate message about the water. These are the most widely used indicator organisms, the benthic invertebrates. They are small animals which live in the mud and sand and among the stones and pebbles on the bottom of the

Benthic invertebrates frequently found in the Surber and Eckman Samplers are the hellgrammite (top), the crayfish (middle), and the worms (bottom).

stream. In this respect, snails, clams, crayfish, leeches, and water beetles are familiar to everyone. Less known perhaps, yet a significant part of the benthic community, are the insects. Many aquatic insects spend only part of their life in the stream, and it is this aquatic stage of the insect life cycle which is of interest to the biologist.

Most people are familiar with insect life cycles. Easily recognizable are the four stages (egg, larva or caterpillar, pupa, and adult) of the butterfly life cycle. A common insect which has aquatic stages in its life cycle is the mosquito. The mosquito egg, larva (wriggler), and pupa live only in water; while the adult emerges from the water, dries its wings and flies away to lead a terrestrial existence. Insects with similar life cycles are the caddisfly, mayfly, dobsonfly, dragonfly, damselfly, midge and others. Many fishermen are familiar with at least one of these life cycle stages. The smallmouth bass fisherman turns over rocks in a riffle area in hopes of finding a hellgrammite, the aquatic larval stage of the dobsonfly; while the trout fisherman searches his tackle box for a suitable imitation of the adult stage of a recently hatched midge fly.

Resuming our journey along the stream, we see that there are generally two types of stream habitat, the rocky riffle area where the stream is shallow and swift, and the mud bottom pool areas which are deeper and more quiet. The biologist carries a sampling tool for each type. In the riffle, he uses a Surber Sampler. This is a metal square, one foot long on each side, with a funnel-shaped net attached at a right angle. With the square placed on the stream bottom in the riffle, the biologist overturns rocks and pebbles inside the square foot area; the benthic organisms which are disturbed, are carried by the current into the net. In the pools, the biologist uses an Eckman Dredge. This is a six inch square box with jaws which clamp shut once the dredge is on the bottom. Two dredge hauls collect one square foot of bottom mud which is strained to gather the benthic organisms. Once collected, both samples are placed in a glass jar, treated with formaldehyde, and returned to the laboratory.

Like the algae, aquatic invertebrates have been classed as pollution tolerant and pollution sensitive. Stonefly and mayfly nymphs, caddis fly and hellgrammite larvae, and certain beetles and clams are sensitive to pollution and will not be found in areas of the stream which receive wastes. Conversely, the midge larvae, sludge worm, rattailed maggot, sewage fly and mosquito are pollution tolerant and are found in even the most grossly polluted water. Members of the intermediately tolerant or facultative group are the damselfly and dragonfly nymphs, blackfly larvae, leeches, aquatic sow bugs, and certain snails and clams.

Some of these indicator organisms are more valuable in that they can send the biologist a more detailed message. Scientists have found that certain invertebrates are sensitive to specific types of pollutants. One example is the sensitivity of snails to the presence of low concentrations of toxic metals (lead, copper, chromium and others) in the water. A decrease in the number of snails within an otherwise unchanged benthic population is a signal to the biologist to seek out and correct the source of the toxic metals.

Returning to the laboratory, the biologist must identify, count, and weigh each kind of organism found within the one square foot sample. The results from this standard square foot sample can then be compared with the results

(Continued on page 20)

Striped Bass

By STEVE PRICE

Price photo

The striped bass, so named for the horizontal stripes on its body. Five pounders such as this are common in many of Virginia's waters, both salt and fresh.

IF you ever wanted to start an argument among fishermen, the quickest way would probably he to ask them to name America's greatest game fish.

Those who live in the Northwest might tell you no fish is tougher than the silver-sided king salmon. On the other hand, someone in the Rocky Mountains might decide the rainbow trout is the greatest of them all. And those down South could say you hadn't even fished until you had tangled with a black bass.

There isn't any real way to choose America's greatest game fish, of course, but there are a number of contenders that consistently live up to their reputations as top tackle busters. One of these is the Striped Bass, *Roccus saxatilis.*

Old Roccus is easy to distinguish from other fish. First of all, he's big. Five pounders are hardly worth talking about. Twenty to 50-pounders are not uncommon, and some over 70 pounds have been taken with a rod and reel. The world record is a 73-pound monster brought in near Nashawena Island, Massachusetts, in 1913. Twenty-two years earlier, however, in 1891, a 125-pounder was netted off the North Carolina coast.

In addition to their large size, stripers can readily be

Left: Jim Dean of Raleigh, N. C., gaffs a landlocked striped bass from Kerr Reservoir. (Photo courtesy Dept. of Conservation and Development, Raleigh, N. C.) Below: Doctor Custis L. Coleman, Chairman of the Virginia Commission of Game and Inland Fisheries, holds the head of a forty-two pound saltwater specimen he landed recently. He is assisted by Eddie Nelson, and Commission member Homer Bauserman, Jr.

identified by their body markings. They are generally long and heavy, with a light greenish-silver coloring. Mixed in are seven or eight dark horizontal stripes, from which the fish is named.

Sometimes stripers can be identified before they are seen, simply by the way they clobber a lure. They do not usually leap or perform surface tail dances after gulping down hooked hardware the way many fish do. Instead, they smash a plug with a bone-jarring, line-straining strike that often turns fishermen into real men again.

But stripers don't always act this way. In fact, because he is prone to be temperamental, this fish has earned the nickname, "Prince of the Unpredictables." Often stripers are pure savages in their feeding, and this is when the real tackle busting begins. Other times the striper is selective, and refuses to look twice at the bombardment of minnows, crabs, bloodworms or mullet that fishermen throw at him.

It is times such as these that an angler's well-filled tackle box earns its keep, for the striped bass also likes wobbling spoons, jigs, bucktails, streamers and popping bugs. But don't let Mr. Unpredictable's appetite fool you. He goes for the big stuff, too. Near Cape Cod once, a striped bass was found with a common tern in its stomach!

Stripers feed at night as well, foraging near rocks and tidal rips. Many fisherman go after them during darkness, actually listening to the fish as they prowl with the tides.

In the ocean this tackle buster likes white water, and is often taken in breakers. But as one striper fisherman said, "for every one in the surf, there are probably 10 lying on the offshore bars and around the rocks."

Stripers are versatile. They'll run the surf, but their bait chasing takes them into bays, inlets, channels, salt flats and coastal streams. While this fellow may like a varied coastline, his most unusual characteristic is that he is equally at home in fresh or salt water.

Known originally as an ocean fish, today some stripers spend their entire life cycle in freshwater impoundments throughout the United States. Originally the striped bass was limited to the Atlantic Coast, with a small scattering in the Gulf of Mexico. Then in 1879 and again in 1881, a group of sportsmen carried two shipments totaling 435 stripers from New Jersey waters across the continent to San Francisco Bay where they were released. This pioneer effort in stocking was fantastically successful, and today fishermen are matching wits with striped bass all along the Pacific coast as far north as Coos Bay, Oregon.

Striped bass have found a freshwater home in Virginia, too, and anglers have pulled some big ones out of Smith Mountain, Kerr and Gaston Lakes. Best striper fishing here is April and May, and again September and October. In salt water, Virginia fishermen go after stripers 12 months a year. In hot weather, soft crabs worked along the grass flats will take fish, while chumming in Chesapeake Bay during the winter is probably the best bet from December through March.

In the Atlantic, the striper has definite migratory movements that have been charted. Each May these fish come into estuaries and harbors to spawn. A three-pound female will deposit about 15,000 eggs; a 15-pounder about 1,500,000; and a 50-pounder will probably start over 3,000,000 on the way to becoming game fish.

Going after these fellows when they've grown up often takes the strategy planning of angling genius. Light tackle works better (it's more fun, too!) in inland streams and lakes, but heavy spinning rod and reel combinations are almost a must in salt water. Casting near jetties and rocks where the water is rough often pays off here.

Chumming is a saltwater tactic used frequently in the Chesapeake Bay area to haul in stripers. This technique is simply anchoring a boat and throwing out a steady supply of bait, such as shrimp, to float down with the tide. As the stripers find the food, they often move up to its source, where the fishermen are waiting with ready hooks.

In fresh water, different battle tricks are necessary. Many anglers like to turn off their outboard engines and drift into a school of stripers. Anchoring quietly, they will cast back upstream and across the current flow.

S. Price photo

Striped bass fishing is good at many times, and many places, such as at dawn on a rocky coast jetty. Jetties such as this one make excellent spots from which to surf cast for big bass.

As the current carries the lure through the feeding fish, the fisherman raises his rod tip and reels in rapidly so the lure will bounce, wobble, weave, dive, spin or jiggle and appear more attractive.

If Roccus saxatilis bass is being ornery and uncooperative, he may ignore your casts. Pretty soon, though, he'll ambush that lure, and when he does, hang on! The tackle busting is about to begin.

Black skimmer, near nest.

Tern, attacking from the sky.

Commission photo by Kesteloo

Mister Scissors and Mister STRIKE

By BILL WEEKES

Martinsville

THROUGHOUT the summer Mr. Scissors and Mr. Strike nest together. It is a marriage of convenience, and their colonies may be found together up and down the Atlantic coast.

Mr. Scissors, better known as the Black Skimmer, is a droll fellow, rather subtle and adroit in his manner of trying to get rid of you should you come upon his nests. Mr. Strike. whose real identity is the Common Tern, is a direct personality. He makes no bones about not wanting you around his nesting premises.

I visited one of their nesting areas on North Carolina's Outer Banks last June. The skimmer and tern also begin their nesting area at this time on such Virginia barrier islands as Assateague, the biggest, and Marsh Sump in Chincoteague Bay. Ranger John Hunter of the Assateague National Seashore reports nestings by these birds on these Old Dominion islands from June until late August.

I discovered these nesting buddies, rather by accident, on the sand flats of Inlet Point. I drove out a mile or so, got out of the car and strolled to one of the beach grass islands on the flat. I soon felt I must be doing "a take" for Alfred Hitchcock's movie "The Birds."

Almost immediately, terns by the dozen hovered over me, black-capped, fork-tailed creatures that emitted raucous screeches and cackles about me. Their calls were harsh and strident. Spee-wak! Spee-awk! Tee-ark, tee-arr, tee-arr!

They began swooping down at me, diving from overhead and shooting for me at eye level, banking off six or seven feet in front of my face.

Tee-arr! Go Away!

Spee-awk! We don't want you here!

Maybe I was imagining it, but the terns seemed to be coming out of the sun, a protective device used by WWII dive bombers. Others, attempting to be unobtrusive, swung wide circles away from me before directing their flight straight toward my face. No matter what the device, these squeaky little demons were indefatigable. Ceaselessly and relentlessly they kept up their scare tactics, saving their most piercing emissions, their most grating cackles until two or three feet from my head.

Clad in dungarees and an inverted sailor hat, I trudged toward one of the islands of beach grass. Groups of skimmers, glossy black on top and white beneath, took to flight as I approached. They cawed like dogs, flying in pairs, threes or fours, their long, orange-red aquiline bills close to the ground. Their wings (42 to 50 inches) seemed too large for their bodies (which range 16 to 20 inches) and at times Mr. Scissors would look as if he had lost control of his flight and one of his wings would fold and the bird would plummet a little before "recovering." The skimmers even landed awkwardly (when I was about), sometimes on their bellies. They then would pull up and bounce comically on their tails until their red legs would steady the equilibrium of their bodies.

The skimmers kept up their high pitched barking and the terns kept up their tireless stream of invective, so much so, I began to ignore their ways. Mr. Scissors and Mr. Strike grew even more excited as I walked around the edge of their island. I was the intruder. I WAS invading their domain. But curiosity, mankind's bane as well as benefit, drove me on. And then I saw the reason for their aggressiveness lying naked in the middle of a barren stretch. Nestled in a slight depression in the gleaming sand were three white eggs, splotched black. About 20 yards from the first clutch, I found another. These were the eggs of the skimmer. I continued hunting over the island of beach grass and came across a clutch of two tan eggs, splotched with chocolate. These were tern eggs. They also rested in slight depressions. But the tern also tries to add a little protection, encircling wisps of grass around the depressions. I continued my investigation until I found a tan egg, next to which lay the fragments of another egg. About a foot away, shaded beneath a sprout of sea

Black skimmer doing his thing—skimming.

cactus, lay a little panting brown ball of down. Its little red beak bespoke its species—the yeomanly defender of the plain, Master Strike.

As I stood over the baby tern, skimmers continued to fly around the island, each yapping like a dog hit by a mail truck. Sometimes they landed and stood dumbly in groups of three or more, like kids badmouthing a new boy on the block. Now I knew why these birds, described by the Pilgrims to be such a singular species, had flown about me so awkwardly. They were subtly trying to lead me away from the island by making me think they were hurt, and therefore vulnerable.

What make these birds singular are their orange bills. The lower mandible is about five inches long and laterally compressed. The upper mandible is about an inch shorter and pointed. When the bird flies over the water—whether it be at sea or over brackish or fresh water—it submerges the lower mandible and is able to snap up food between its mandibles like a scissors. Just how the mandibles are operated continues to be a matter of disagreement among naturalists. Nevertheless, the skimmer, so named by English naturalist Thomas Pennant in 1773, has, therefore, also been labled "Cut-water," "Scissor-Bill" and "Shearwater."

The common tern (*Sterna hirundo hirundo*) is also adept at fishing, hovering above the water until suddenly dropping headfirst into the brine only to emerge, seconds later, with some sort of fish. These birds nest sooner than the skimmer. Because of this, and because both birds usually nest in the same area for mutual protection, and because the skimmer is not much of a fighter, the skimmer must nest pretty well where the tern lets it. Mr. Strike seems generous enough in this respect and may justifiably be boss of this colony, doing most of the hard work defending it—or trying to—from foreign encroachment.

I left the nests of Mr. Strike and Mr. Scissors and headed back to the car. The terns' tempo of terror-tactics continued unabated. Their shadows cut imaginary swatches above my head, which was silhouetted on the shell-riddled ground before me. Their swooping fell lower and lower like Poe's pendulum until suddenly two terns, in rapid succession, tapped the top of my cap.

Swoosh! Swoosh! Tee-arr! Tee-arr! Leave us alone! We were here before you! You are the intruder. Leave us alone!

Was mere human presence, much less increasing human numbers, enough to affect the stability of a bird colony's survival patterns?

Undoubtedly, the expanding number of people is crowding out the numbers of beaches available for nesting to Mr. Strike and Mr. Scissors. But Ranger Hunter of Assateague also reveals that the presence of humans, if they keep these birds off their nests long enough, may lead to the destruction of life within the egg. For, unlike the woodland bird, the mother skimmer and tern sit on their eggs not to keep them warm, but to keep them cool. The sands in which the eggs rest may reach temperatures of 140 degrees in mid-summer and must be protected.

"This is why disturbance of these birds by humans can be so detrimental," Hunter said. "On the sites that are not protected, the mortality rate is high."

I did not know scaring these birds off their nests was endangering their eggs and probably at the time I visited Inlet Point, the eggs would not have been harmed by exposure. It had rained and was overcast and these conditions worked to keep down the temperatures on the sands. But this is one of many examples of how unthinking man COULD upset nature's delicate balance by his mere presence in certain areas of wilderness.

Hatchling tern and egg.

Nat. Audubon Soc. photo by A. D. Cruickshank
Tern at nest.

Only when the encroacher—like myself—departs, does tranquillity return. Back in my car a "safe" distance away, I observed the terns settling on the sands amidst the island. The black skimmers circled and eased on down around the grassy mounds and rested at last. Some crooked their heads underneath their wings. Others wiggled their bodies into the dirt, as if making a nest depression. A mid-morning siesta seemed forthcoming.

As I motored away, I passed other colonies. Several adult skimmers walked about fretting at their creamy-colored juveniles, which raced about yapping and stretching their oversized wings like bullfighters with capes.

As I headed back to "civilization" and the camped colony wherein human bi-peds congregated, I wondered how long it would take before this latter colony would crowd out and make extinct the colonies of Mr. Scissors and Mr. Strike.

Let's Go Berrying

By MARJORIE LATHAM MASSELIN

Richmond

Commission photo by Kesteloo

"LOOKIT, Mama! Look what I *found*!"

"I see." I hoped that my voice expressed more joy than I felt at the sight of my berry-stained son. "You must have dug into the mother lode," I said.

"No he didn't!" his disapproving older sister piped up from just behind him. "He's gotten into a blackberry patch. Just *look* at him, Mother!"

"I am, dear." I steered them toward the kitchen, found a small bowl for the contents of those two purple little hands, and noticed as he deposited the berries that, for all his enthusiasm, he had managed to transport the haul in remarkably sound condition. "Let's make a tart," I suggested. Both children approved instantly, and so I left them with a recipe and a firm admonition that sister was to read it and brother was to do the cooking. As I left the kitchen the first battle was underway.

"You've got to wash up first," I heard our daughter commanding; "You can't *cook* until you're *clean*!"

"O-*kay*, bossy, I am!"

With time and patience we trained that little boy to take an empty lard pail with him when he had a yen for blackberries. He had one often while the supply lasted and the bushes grew at random all along the lane to our house in Dothan. We had a wealth of pies, rolls, cobblers and even made some jams and jelly. Both children learned from the experience. They learned that wild berries are a free bonus gift of Nature; they learned to cook, to follow the directions of a recipe and to clean up afterward leaving the kitchen in the same state in which they found it. And I fancy, since they both kept coming back for more, that they found some pleasure in supplying the family table with desserts.

Children are born foragers, I think; though perhaps it is only because they are mine and they have inherited it from me. Having been raised on a farm, I love the land and respect it, and I can never bear to see Nature's bounty go to waste. I have a friend here in the city who is also a "country girl" and she puts it another way. She calls it instinct and says, "When I see a crop ready for harvest, I just have to get in there and pick!"

I wish there were more like her. One thing that has troubled me for years is the sight of the bushels of crab apples that fall from the trees in city parks and are left to rot there. Friends supply me with all the apples I can use, so I have only worried about these crab apples and never done anything more constructive about it. But I am much encouraged. One day, late last summer, I was listening to the police band when the subject under discussion turned out to be these very crab apples. A citizen with leanings akin to mine had asked a policeman if it would be all right for her to gather some. Apparently the idea was new to him and, not having a ready answer, he called in to check the matter out.

No one at headquarters was prepared to answer either, but they asked around until they located the proper authority and presently the patrolman was called back and informed that he could tell the lady it was okay to help herself. It gave me a warm sense of well-being to know that some at least of those tart juicy fruits would become shimmering glasses of clear red jelly and jars of whole spiced preserves. It makes me feel "good all over" to think of jars lined on a pantry shelf, stored until winter, and then brought out of a cold morning to be spread on breakfast toast.

We had *blackberry jam* this morning, but it was not made from the berries in the patch our son found and frequented in Alabama. It has been a long time since then. This jam was made from Virginia blackberries which grow in the same wild abundance here as there. These happened to be on property belonging to friends of ours who did the picking. That I thought was fifty percent of the work, and so I did the jam and jelly making and we shared the result.

These were the true blackberries, the kind that are big and glossy and full of pips. There is another kind which I have seen growing along country roads and stopped to pick but not in such quantities. They are much smaller, not so "seedy" and the fruit is dull and dusty looking. I picked them as a child and called them thimbleberries, although I think the proper name is black raspberry. The flavors of the two are quite different but equally delicious.

As I said, these blackberries reached my pantry shelf as the gift of Nature and a generous friend. The jelly kettle bubbled; the larder filled up. We had pies and cobblers and blackberry rolls and froze some fresh berries to make more in the winter. The birds got their fair share and time came when my friend set a full basket down on the kitchen counter and said, "That's about the end of them."

"Well, then, I guess I had better make these into juice."

"You mean syrup?"

"That would be good, too, but I was thinking of shrub."

"Ahhhhhh . . ."

Actually it tastes more like "Mmmmmmm . . ." To make jelly, one needs to purchase a bottle of certo or some other commercial pectin and any of these products contain all the recipes necessary for making preserves. Similarly, there is hardly a cookbook published which fails to include an adequate recipe for berry pies and cobblers and even "slumps." For "shrub" and "bounce," while they are a definite part of the Colonial Virginia Heritage, one must have a family "receipt" or a very old cookbook.

Bounce and shrub are pretty much the same thing. Each is based on the juice of a wild fruit, usually a berry such as blackberries or raspberries or in some cases the wild cherry. The juice is sweetened to the maker's taste and then a quantity of spirit is added. Some recipes call for rum and others say only French brandy should be used. I would guess that the difference is a matter of both taste and solvency. In Colonial times, rum from the West Indies was more easily and cheaply come by than was fine brandy from France. One old recipe notes that the cheapest rum at seventy five or even fifty *cents a gallon* answers just as well for bounce as the most expensive spirit. If you have not noticed inflation lately, read that sentence again. A few of the old recipes call for spices such as whole cloves, stick cinnamon and allspice berries. I omit spices because bounce is meant to be drunk cold, and I think spice serves a better purpose in a hot drink such as mulled cider. The beauty of bounce and shrub is that they are festive without being either very sweet or very potent. They can be made potent, of course, but I think it spoils their charm.

BLACKBERRY BOUNCE

Into 2 quarts of fresh, frozen or bottled blackberry juice, stir extra-fine granulated sugar to suit your taste. Dissolve the sugar completely and add 1 cup of dark Jamaica rum. Store covered in the refrigerator for at least 24 hours and serve cold in small glasses or punch cups.

Some of you may not be familiar with "Slump." It is also called "Grunt." Neither name would send me rushing to the kitchen if I were not already aware of the resulting dish, but I find the former slightly less dismaying than the latter. Slumps date back to Colonial times, and I suppose one would describe them as a distant relative of cobbler, which is baked in an oven. In Colonial days it took some doing to heat an oven. Cooking was done at an open fireplace, and in winter when the fire was kept up, the oven heated as a matter of course. But during berry season, it was desirable to let the fire die down between meals and the oven stayed cool. This is understandable. In mid-August I am not always eager to turn my oven up to 400 degrees. Top-of-the-stove cooking is infinitely preferable. Slump is prepared that way. The proper utensil for making it is a deep kettle, of heavy iron or copper with a tightly fitting cover.

BLACKBERRY SLUMP

Fill the pot with fresh blackberries to no more than half its depth. Add a sprinkling of salt if you are in the habit of using it, and for each quart of berries add about ½ cup sugar. Some blackberries are much sweeter than others, so it is advisable to taste. Stew gently over low heat until the juice runs and the sugar can be dissolved. Stirring should be cautious. The berries should not be mashed to a pulp. Once the sugar is combined, the heat can be increased to bring them to a boil and then adjusted so that they will not scorch.

On top of the hot stewing fruit drop small spoonfuls of dumpling batter, cover tightly and cook *without peeking* for about fifteen or twenty minutes. Insert a cake tester in the center dumpling, and if it comes out dry all is well. Turn off the heat and get ready to serve. If there is moist dough clinging to the wire, pop the cover back on and cook a little longer.

Slump should be served warm but not scalding hot. Lift the dumplings onto a deep platter or other serving dish and spoon the berries over them. Pass a pitcher of heavy cream, plain or slightly sweetened if you like, and with a touch of nutmeg or cinnamon. My husband prefers to put a scoop of vanilla ice cream on top and eat his that way.

Dumplings should contain only flour, baking powder in the proportion of 1 tsp per cup of flour, and enough cool water to make a very light, fluffy, "open" dough, that will hold together without being gummy . . . rather like very stiffly beaten egg whites. Dumplings made this way will always be light when cooked. Once you start adding eggs, milk, shortening, etc., dumplings become heavy, soggy and completely inedible.

Just about any wild berry that can be improved by cooking makes a good slump.

In Nature's Garden

Fire-Pink

By ELIZABETH MURRAY
Department of Biology, University of Virginia

Illustrated by Lucile Walton

THE Fire-Pink, *Silene virginica*, is a beautiful representative of the pink family and can be found in bloom throughout Virginia at the moment, in open woods and thickets, on rocky and sandy slopes and along many a roadside bank. The stems are from one to two feet long; but since they are weak and reclining at the base, the plant does not stand up quite as high as this. The leaves are paired, up to several inches long, narrow with the greatest width nearest the tip, and smooth. The sepals are united into a tubed calyx, from the center of which spring the five narrow petals, double-toothed at the tip and of the most brilliant scarlet color.

The pink family, or Caryophyllaceae, is a large one, the majority of the representatives living in the northern temperate parts of the world. Most members of the family are herbs, with sizes ranging from quite small weeds to large plants with handsome flowers. A number of species are valued in gardens and greenhouses, including such flowers as carnations, many pinks and baby's breath (*Gypsophila*). One marked characteristic of the family is the arrangement of the flowers in cymes. The central stem ends in a flower; two flowers spring from the stem below it, two flowers spring in the same way from each of their stems, and so on. Thus, a sort of loose candelabrum is formed. In all species of the genus *Silene* the flower parts are in fives, as they are generally throughout the family. A technical feature which characterizes the family (with a few exceptions) is the attachment of the ovules on the ovary to a central stalk which is not fastened at the top, a condition known as apically free central placentation.

The name fire probably refers to the glorious scarlet color, although another possibility is that the plant has this name because it is an early invader of an area which has been burned by fire. Etymologists differ as to how the name pink became attached to the flower but agree that it does not describe the color.

Another name for the fire-pink, red catchfly, draws attention to a different feature of the flower. The stems are hairy and covered with a sticky secretion which is produced by special glands in the stem. The name catchfly refers to the supposed ability of this sticky stuff to prevent ants and other crawling insects from reaching the nectar, enhancing the chances that the flower will be pollinated by flying insects and gain a wider distribution for its future generations.

The fire-pink can be cultivated quite easily, although it tends to have sprawling, ramifying roots in the wild and hence may be a bit hard to dig up efficiently. It prefers a slightly acid, sandy soil, partial shade and good drainage, without which it may become susceptible to attack by fungi and other pests.

It has a wide distribution in the east, extending from Canada down to Georgia and westward to Minnesota, western New York and Oklahoma. Another common name for *Silene virginica* is the Indian Pink although in the western part of the United States this name refers to *Silene californica*, which has rather similar habits. Our fire-pink blooms through the summer, starting in late April or May and continuing in some of the higher, cooler areas as late as September.

It seems to be neither particularly edible, nor used as a medicine. Some other members of the genus *Silene* are cooked as potherbs and vegetables, but I hope not frequently. There are so many plants which are not very attractive yet make excellent 'wild' vegetables, such as young poke weed (*Phytolacca*) and mustard greens (*Brassica*), a member of the Crucifierae known to country Virginians as "creases." It seems a shame to pick on species which will have beautiful flowers later on if left to themselves. Let's enjoy the pinks as flowers!

I was interested to find an entry in an old flower book, to which I often refer, Wood's *New Botanist and Florist*, published in 1870. My copy belonged to my husband's grandmother who was an ardent and very good naturalist, and her pencilled notes decorate the margin of the book in many places. On May 25, 1891, she records finding *Silene virginica* on Dunn's Mountain in Rowan County, North Carolina. I would be quite prepared to wager that it could still be found there in 1971 and would be amused to hear from anyone who does so.

VIRGINIA WILDLIFE

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CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

HOG ISLAND ROAD TO BE OPEN ON WEEKENDS. The entrance road to the Game Commission's Hog Island refuge is now open on weekends after being closed for several years while dike construction was in progress. Bow fishermen were among the first to take advantage of the improved access as they enjoyed the special bowfishing season for carp which ended June 30.

The road was originally closed to allow heavy machinery to haul fill dirt from the nearby VEPCO Nuclear Power Station construction site, which was used to create water control dikes on the refuge and to raise the level of the road itself. The volume of this hauling has decreased until it was possible to restrict the large earth-moving vehicles to weekday use only, making the road safe for visitor travel.

GAME COMMISSION SIGNS OPTION TO SELL GATHRIGHT PROPERTY. The Commission of Game and Inland Fisheries has signed an option, subject to gubernatorial and legislative approval, to sell 5,235 acres of its Gathright Wildlife Management Area in Bath and Alleghany Counties to the U.S. Corps of Engineers for incorporation into the Gathright Dam Project now under construction. Extensive evaluation by real estate appraisers set the value of the tract to be taken at $620,000. The 13,000 acres which the Commission would retain were valued at $651,500.

The Corps plans to develop extensive recreational facilities including boat ramps, picnic areas and campgrounds along the reservoir which will occupy some 2,530 acres of the 5,235 acre tract. At least 6 access points are to be acquired to assure fisherman access to the Jackson river between the dam and Covington. Under conditions of controlled flow and temperature, this section of the Jackson should be one of the best trout streams in the East. Portions of the project land not flooded can be licensed back to the Commission for hunting if desirable.

HIDDEN VALLEY LAKE RULES CHANGED. The Commission of Game and Inland Fisheries has changed the rules on trout fishing at Hidden Valley Lake in Washington County effective July 1, reports Fish Division Chief Jack Hoffman. The artifical lures only restriction and special 10 inch minimum size limit on trout will then be lifted allowing fishermen to keep any size trout. The special creel limit of 5 daily was retained. The 60 acre lake is located on the Game Commission's Hidden Valley Wildlife Management Area west of Abingdon.

VIRGINIA PHEASANT SUCCESS BEST IN SOUTHEAST. Virginia's pheasant success story, although limited, proved to be the best reported from 16 southeastern states represented at the Southeastern States Foreign Game Workshop which convened in Richmond recently, reports Game Commission Game Farm Manager Dennis Hart who served as host. Although a number of states tried the Iranian blackneck pheasants and other pheasant varieties made available through the Foreign Game Investigation Program of the U.S. Fish and Wildlife Service, Virginia is the only one credited with successful establishment of these pheasants and the only state actively stocking new areas at this time.

The oldest of Virginia's successful releases is in the Sandy Point area of New Kent county where western Iranian blackneck-Imperial Valley ringneck crosses have been holding their own for some 12 years. The other positive success is near Luray in Page county where eastern Iranian blackneck-Imperial Valley ringneck crosses have been breeding and expanding their range since 1963. Other scattered sites around the state show some promise and new release sites are being tried each year.

Missouri and Kentucky reported that they had ceased large scale stocking to evaluate results. Louisiana is credited with successful introductions of the black francolin, a bird tried unsuccessfully in Virginia. Alabama, South Carolina and Georgia continue to experiment with junglefowl and tinnamou, birds not suited to Virginia's colder climate. Tennessee is reported still working with Kalij pheasants and Virginia has not ruled out more extensive work with this species in the future.

GETTING THE JUMP ON WHITE BASS

By BILL COCHRAN
Roanoke

ALONG about July and August—doldrum months that have many anglers crying the blues—South Holston Reservoir suddenly erupts to life with some of the most exciting fishing imaginable. Nearly every evening, and many mornings, too, the surface of the deep, green impoundment explodes to life with schools of feeding white bass. These wolflike packs of fish expertly herd young-of-the-year shad to the top of the lake and charge into them so ravenously that the water boils and froths with the action.

Fishermen wise to the ways of white bass watch for the disturbances with the intent of a cat after a mouse. When they spot such a rumpus, they gun their outboard engines and roar off to the patch of foraging fish to cast a spoon or spinner. Generally, the lure is retrived only a couple cranks before it receives a jolting strike from a heavy-bodied white bass.

It's called jump fishing, but many who try it prefer to call it the most exciting angling that there is, a combination of both hunting and fishing. This fishing is generally best in the lower portion of the 7,500 acre TVA impoundment sprawling across the Virginia-Tennessee border south of Abingdon. It tends to work its way upstream somewhat as the summer progresses, often lasting well into September.

Much of the jump fishing is located on the Tennessee side of the impoundment, but, fortunately, that state and Virginia have an interchangeable license agreement, which means you may fish the entire lake with a license from either one of the two states. Tennessee officials, however, require boats of five horsepower or more to be registered with one of the two states, something that occasionally gets unknowing Virginia fishermen into trouble since 10 horsepower is the minimum size for registration in this state.

An expert at jump fishing is Hilton Rector, a doughnut maker from Chilhowie. Rector likes to use silver spoons for the jumps, wisely matching the lure to the size of the shad.

Chewing on a fat cigar, he slowly and intently cruises the impoundment, like a hawk after a meal. He is watching for white bass—stripes, he calls them—to go chopping through schools of threadfin shad, an action he can spot a half-mile away. The important thing is to get to the fish before they sound; thus, when Rector spots the whites, he guns the 20 horsepower engine on his 14-foot boat and roars off toward the feeding fish, cutting the motor just in time to quietly, yet quickly, drift within a long cast of the action.

Almost before the engine propeller has stopped spinning, Rector is sending out a lure and reeling it back at top speed. Generally, he'll catch from one to five spunky stripes before the shad are scattered, or the school gets suspicious or tired of the warm surface water and scampers back to the depths.

Normally, they don't stay down for long. They'll shoot up somewhere else again, flushing another school of shad, and Rector will go roaring after them. The trick is to be within striking distance of them whenever they rise to the surface.

"They'll break the surface in one spot, then five minutes later they can be 500 yards down the lake," he says.

Since the stripes may be expected to remain on the surface only for about 30 seconds, Rector takes full advantage of the situation. He uses two rods, casting with one, hooking a fish, then setting the rod down and holding

This catch of white bass was taken from Claytor Lake by Dillard Grubb of Roanoke.

Some of the white bass w
inches and weigh

Into a school of whites, th
casting and figl

it with his foot while he casts with another.

On an exceptionally good evening, schools will stay on the surface until limit catches can be reaped. One day last August, Rector and a friend, George Snead of Salem, discovered an acre-size school of white bass just above highway bridge 421 that stayed up for an hour. Almost without moving their boat, the two anglers landed 38 stripes during 60 minutes of rod-ripping, heart-pounding excitement. Next evening, Snead and Bob Walker, of Seven Mile Ford, went back to the same area and found conditions even more frantic. They got 50.

Days like that, though, are the exception. At this fishing, like all the other, there are times you can get skunked, particularly if the water is churned by too much wind. The most productive sport is enjoyed when the surface of the impoundment is calm, since schools of feeding whites can be spotted easily under these conditions.

Such fishing remains quite novel to most Virginia anglers, but it may be expected to become a major angling sport in a few years if freshly stocked populations of white bass do well in Smith Mountain and Gaston reservoirs, and there is little reason to believe they won't. At present, the South Holston Reservoir offers the best jump fishing. Some evenings, white bass will surface on Claytor Lake, providing good sport. However, the major forage fish at Claytor is the alewife, and these baitfish do not seem to cruise along the surface as readily as threadfin shad.

When the stripes are up, Rector uses a fast—blazing fast—retrieve. "You can't wind it too fast to catch them." Normally, the lure doesn't travel far before it is smashed, and smashed hard. Explains Rector's fishing friend, Harry Pugh, also of Chilhowie, "When they are feeding on top, they are absolutely mean." Nearly any spoon, spinner, fly and spinner or small to medium plug will take them then.

The best jump fishing is late in the day, after 6 p.m., when the shadows lengthen and the heat begins to wane. Another good period is early in the morning, shortly after dawn. While occasionally schools will surface mid-day, they generally stay deep then.

Some evenings when the white bass aren't feeding on the surface well, anglers catch them by trolling a few feet off the shoreline where the water is muddied somewhat by the wave action of the wind and passing boats. Here, apparently, schools of shad, following the prevailing wind, move in to feed on algae and the stripes follow them. It doesn't produce the same kind of wild action that jump fishing offers, but often it is quite productive—and fun.

In reality, the white bass is a good sport fish any way you go after him. These clean-cut, silvery fish smash a lure with authority and put up a rod-ripping scrap. Most caught will measure about a foot in length, but some will go 16 to 18 inches and weigh three pounds. These warriors can—and do—break the line of even a skillful fisherman. The stripes, especially out of the South Holston, make an excellent table fish.

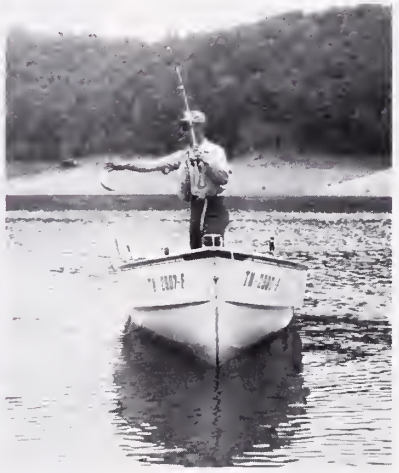
Naturally, a boat is needed for jump fishing, and one with at least a 20 horsepower engine is perferred. Several public ramps and marina facilities are to be found along the shoreline of the South Holston. Occasionally, severe drawdown during the summer months makes boat launching difficult, but for the most part, facilities are ample. And when the white bass are cutting shad, the excitement is plentiful.

asure 16 to 18
ounds.

Most of the white bass, like this one Rector holds, will measure about one foot.

South Holston anglers scan surface for schools of feeding white bass.

Hilton Rector uses tractor umbrella to shade his fishing boat.



Rector plays a scrapper into his boat.

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sh.

PANTHER STORIES

By WALLACE OBAUGH
Hinton

Photo by L. L. Rue III

I ONCE had a neighbor who told stories. They were simple stories, but because he believed them, he told them with authority. One of his favorites was about the panther at the spring. You have probably heard it, especially if you grew up in the B. T. (before television) era. But if you haven't, here it is:

A hunter, coming to a mountain spring, lay on the ground to drink. As his eyes neared the water, he saw reflected in it the image of a panther crouched on a tree limb, twitching its tail in the manner of a cat ready to leap. Timing himself carefully, he rolled aside as the animal jumped, and the baffled varmint got only a mouthful of water. Grabbing his gun, which he had prudently laid nearby, the hunter quickly made an end to the ferocious beast. As far as I know, he lived happily ever after, or at least until he met another panther.

Later I heard the same tale from others. I suspect that, like the romantic one about the unhappy sweethearts at Lover's Leap, it has had many locales. Since I have lived at Rawley Spring, the sources of two of the rills that feed Dry River have been pointed out to me as the spot. One was Maple Tree Spring on Richland Mountain; the other, the spring at the head of Dry Run Hollow. Whether the story is pure legend or based on fact, it was real enough to one small listener.

It was brought to mind again by the sighting of possible panthers near the Peaks of Otter. The men who have seen the creature, or creatures, have been practical out-of-doors people, including rangers. They have not seen the animal well enough to be sure, but what they have seen looked like the big cat variously called panther, puma, cougar, mountain lion, or catamount.

These animals have been considered extinct in the East, except in a few southern swamps, and rumors and even reports of their presence have been politely doubted. William Hamilton expressed the general opinion in his book *The Mammals of the Eastern United States* (1943): "Repeated press accounts of the presence of these large cats in the eastern United States occur, but such stories lack authenticity. The Adirondacks was the last stronghold of the panther in the Northeast, and the latest record from this wilderness was in 1903."

But the rumors persisted. I do not mean the varmint scares that used to regularly arise every few years. The critter that

occasioned these was usually seen at twilight in a farm woodlot by imaginative children. (This was forty or fifty years ago, when country boys and girls had to walk home from school at the dusky end of a short winter's day. Modern youngsters, rushing in from the school bus to watch make-believe adventure on the screen, just don't know!)

There have been, in Virginia and neighboring states, more convincing reports. The March-April 1968 issue of *Audubon Magazine* carried this item: "The Pennsylvania Game Commission has released a photograph of a forty-eight pound, five foot long mountain lion killed by a Keystone State squirrel hunter, and a bigger one got away. It's been a century since a wild lion was known there; rumors in recent years were scorned."

I wrote to Mr. Robert S. Bell, editor of *Pennsylvania Game News*, for further details or comment. He replied that the animal had been shot by John D. Gallant in Venago Township, Crawford County, on October 28, 1967. It was examined by Dr. Kenneth Doutt, Curator of Mammals, Carnegie Museum, who estimated its age at about seven months. Mr. Bell said that it was not certain if the animal was of wild stock or an escapee.

I have at hand a book called *The Puma, Mysterious American Cat*. It was written by Stanley P. Young and Edward A. Goldman, both senior biologists of the Section of Biological Surveys, Division of Wildlife Research, Fish and Wildlife Service, U. S. Department of the Interior. The book quotes part of a letter written in 1944 to Dr. Remington Kellogg of the U. S. National Museum by Victor H. Cahalane of the National Park Service. The letter said that the Park Service had received "Persistent reports . . . from Shenandoah National Park that mountain lions are seen from time to time. The latest observation was made during last August (1944) in the northern part of the Park. The statement carefully specifies that the two animals seen were 'long-tailed cats'."

This book also gives Dr. Kellogg as authority for the statement that panther tracks had been seen in the snow in West Virginia in 1935 and 1936 on Black Mountain in the Monongahela National Forest, and in 1936 on Kennison Mountain in Pocahontas County.

Reports like these place the *probable* local existence of the big cats on a fairly firm base, now buttressed by the recent reports from the Peaks of Otter.

Statements of a less official nature are from *American Lions and Cats* (1963) by Miss B. F. Beebe: "We now have more cougars in most eastern states than our grandfathers knew." The author gives as one reason for this comeback the fact that much formerly cleared land is being returned to forest, and continues: "The other reasons are related. Protected National Forests and closed game seasons meant an end to dog packs and incessant hunting. This resulted in large deer populations never known in the memory of the oldest living natives in many areas . . . All the eastern states are visited by cougars each year now. . . . In the East the Appalachains serve as the cougar's turnpike, and from it the animal makes side trips. When the cougar finds good deer country, and there are adjacent rocky cliffs where it can lose dog packs, the animal is apt to make itself a permanent home. With increasing food and protection, the cougar has multiplied accordingly."

That sounds reasonable. Virginia and her neighbor states have enough wild, wooded country to provide range for a panther population. The mountains you can see from just the Virginia end of the Blue Ridge Parkway would accommodate a hundred. This includes the Peaks of Otter area, and the elk herd established there would keep the pumas interested. There is no doubt that the animals have maintained a nucleus population in the Florida Everglades, and probably in the Okefenokee Swamp in Georgia. From these areas the wide-ranging creatures could find routes through continuous woodlands to any part of the Appalachians.

A friend remarked that, if panthers do return to Virginia, it would add a certain spice to camping out.

It was an intriguing thought. What would it be like to share a few square miles of darkened woodland with one of the creatures? To learn what I could of the nature and habits of the big cats, I went to the experts: men who had hunted or studied them firsthand. Most of the following words will be theirs, quoted directly or indirectly. My main source of information is the book already referred to: Young and Goldman's *The Puma, Mysterious American Cat*. To save space, I may omit parts of sentences or paragraphs.

The big questions, naturally, concern the panther's relations to man; the biggest of all, how often does he attack humans?

The general opinion is: not often. The records of such attacks are few. The picture of the panther as a tawny people-eater, "walking about, seeking whom he may devour," is based on his stealthy nocturnal ways, his speed and power, and the fact that his curiosity tempts him to follow people through the woods or prowl about their camps.

With this tendency to follow, Mr. Goldman had a personal experience. "While hunting mountain sheep along the crest of the Charleston Mountains of Nevada it was impressive to find that I was being trailed in the daytime by a mountain lion, which was not seen, and it was only when my route was recrossed that I discovered the fresh tracks of the animal persistently following each bend in my course."

Mr. Edward A. Preble also relates a personal story. "A panther came through our camp [at Paulina Lake, Oregon], passing a few feet from our beds, where we found his tracks in the morning." I remember a similar statement from Ernest Thompson Seton. He and a companion found puma tracks a few feet from where they had spent a night in sleeping bags, and it looked as if the creature had walked between them. These examples are from the pens of three outstanding observers. There are many others.

As with us, a minor temptation yielded to may lead to a worse one. This may have happened in an attack that took place near Malott, Washington, on December 17, 1924. The victim was a thirteen-year-old boy, killed while on an errand to a neighboring ranch. Tracks in the snow told the story. The panther had followed the boy, and apparently attacked when the lad became frightened and started running. The body was partly eaten. The animal was later trapped, and in its stomach was found an undigested mass containing human hair and two small pieces of the boy's clothing.

A verified attack took place in California in 1909. A young woman named Isola Kennedy was watching children wade in a small brook. A puma suddenly appeared and seized one of them. While the other children ran for help, Miss Kennedy tried to rescue the boy under attack. Before help arrived, she was severely bitten and scratched. The panther was shot on the spot. A week or so later the boy died, apparently of tetanus. Three months later Miss Kenedy died of rabies. This suggests that rabies may have been a factor in other assaults.

(Continued on next page)

PANTHER STORIES (Continued from page 17)

A probable attack took place near Lewisville, in the southeastern corner of Pennsylvania. A tombstone in an old cemetery there bears a crude, but unmistakable, image of a panther. The inscription identifies the buried man as "Philip Tanner who departed this life May 6, 1751." There seems to be no official record of the cause of death, but the picture, plus a local tradition pinpointing the place of the attack, are suggestive.

Theodore Roosevelt, a noted hunter and student of the animal, relates: "When the continent was first settled, and for long afterward the cougar was quite as dangerous as the African or Indian leopard, and would even attack man unprovoked. An instance of this occurred in the annals of my father's family. Early in the century [the 1800's] one of my ancestral relatives moved down to the wild and almost unknown country bordering on Florida. His plantation was surrounded by jungles in which all kinds of beasts swarmed. One of his negroes had a sweetheart on another plantation, and in visiting her he took a shortcut through a swamp, armed only with a long knife. One night he started to return late, but he never returned home. His body was found in the path through the swamp, all gashed and torn, and but a few steps from him the body of a cougar, stabbed and cut in many places."

Roosevelt later summed up the cougar-versus-man situation like this: "The cougar is as large, as powerful, and as formidably armed as the [Old World] Indian panther, and quite as well able to atack man; yet the instances of its having done so are extremely rare. But it is foolish to deny that such attacks on human beings never occur . . . it cannot be too often repeated that we must never lose sight of the individual variation in character and conduct among wild beasts."

That last statement, true of all creatures, could apply to the puma in an especial way. His original range over most of both American continents gave rise to at least thirty subspecies. Each type of habitat, swamp or desert, woodland or prairie, altered both the habits (method of hunting, etc.) and appearance of its local race. The subspecies differ in size of head and feet and especially in color, each race having acquired the hue that gives it the best camouflage in its own setting. Might not this diversity have reached into their inner natures?

An earlier summation by Audubon agrees with that of Roosevelt. After citing several cases of attack he said: "We have given these relations of others to show that at long intervals and under peculiar circumstances, when perhaps pinched by hunger or in defense of its young, the cougar sometimes attacks man. These instances, however, are very rare, and the relations of an affrighted traveller must be received with some caution, making due allowance for a natural disposition in man to indulge in the marvellous."

Add to these statements the fact that the recorded attacks took place in frontier regions. Any panthers now in the East have inherited a healthy instinct for avoiding humans. Their possible presence should not be disturbing. But I say this indoors, in broad daylight. If I should ever, alone in the woods at night, find myself looked at through panther eyes, I could change my mind quickly.

Many panther stories feature the creature's voice. It is said to scream like a woman or cry like a baby. These human sounds are made with intent to deceive, the idea being to lure a would-be rescuer within range of assault.

Opinion on the puma's voice vary, even among naturalists. The screaming, especially, has been disputed. Here are a few comments on the subject. But remember that the writers had listened, in different places, to different kinds of panthers.

W. A. Perry: "It is a cry so unearthly and so weird that even the man of stoutest heart will start in affright; a cry that can only be likened to a scream of demoniac laughter. This is the cry of the male. If it is answered by the female, the response will be similar to the wail of a child in terrible pain."

C. W. Whitney: "Their cry is as terror-striking as it is varied. I have heard them wail so you would swear an infant had been left out in the cold by its mama; I have heard them screech like a woman in distress. The average camp dog runs to cover when a cougar is awakening the echoes of the mountains."

A. B. Colgate: "As I started toward camp a queer, half-human cry came from quite a ways behind me. In a few moments it came again, very much closer, and I realized what it was. The cat followed along near me for over 2 miles and yelled at least 6 times. I saw it twice; once as it jumped the creek behind me and went into the trees, and again as it leaped out onto a high ledge of rock up ahead. Daylight was almost gone, and it took all the nerve I could muster to slip down past the place where I had seen it. Just as I got by it let a final, drawn out, wailing shriek, not more than 50 yards away."

E. A. Goldman: "The puma has a wild, weird scream-like cry not calculated to soothe the nerves of a night wayfarer on a lonely forest trail. This is uttered so infrequently, however, that some old hunters assert they never heard the cry and are even skeptical that it is ever given."

Charles Darwin: "It is a very silent animal, uttering no cry even when wounded, and only rarely during the breeding season."

Theodore Roosevelt: "I am not sure that I ever heard one."

Ernest Thompson Seton: "The cougar is sometimes a very silent animal, especially when hunting or hunted. But at other times it has just as many sounds as the common cat; they are of the same type as those of the cat, but they are magnified to a scale fitted to the superior bulk of the cougar, that is, about 20 times."

Imagine a feline concert twenty times louder than those sometimes put on by our household tabbies!

But William Byrd was not impressed with the voice of the panthers in colonial Virginia. Let me close with a passage from his *History of the Dividing Line*:

"The Indians came across a bear, which had been put to death and half devoured by a panther. The last of these brutes reigns absolute monarch of the woods, and in the keenness of his hunger will venture to attack a bear; tho' then 'tis ever by surprize, as all beasts of the cat kind use to come upon their prey.

"Their play is to take the poor bears napping, they being very drowsy animals, and tho' they be exceedingly strong, yet their strength is heavy, while the panthers are too nimble and cunning to trust themselves within their hugg.

"As formidable as this beast is to his fellow brutes, he never has the confidence to venture upon a man, but retires from him with great respect. However, it must be confessed, his voice is a little contemptible for a monarch of the forest, not being a great deal lowder nor more awful than the mewing of a household cat."

Little Mole:

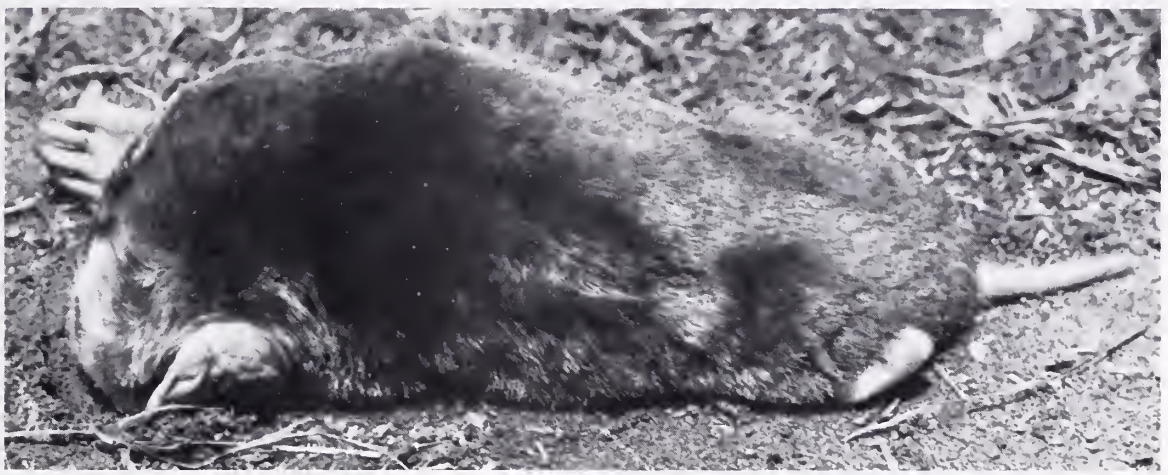
Friend or Foe?

By SHIRLEY HAWN
Jones, Michigan

HOW many times have you paged through a gardening catalog and seen the advertisements for gases, poison pellets and traps? After reading the first one perhaps you began to suspect that the mole was the villain of the garden with a ravenous appetite for potatoes and an exotic taste for orchid bulbs. By the time you read two or three more you quite likely had decided that a mole is an out and out vegetarian that dines at will on your most succulent vegetables, prize flower bulbs and the roots of only the finest lawn grasses.

A lawn pest he is if you like a flat lawn. But is he all we have been led to believe? Perhaps the best clue to our answer is to take a look at his scientific name or, rather, the order to which he belongs, which is Insectivora. which means literally that he eats insects. And what a little glutton he is! Each 24 hours he consumes his own weight in Japanese beetle larva, beetles, grubs, wire worms, cut worms, anything that is or will be an insect as well as, alas, earthworms—an estimated fifty pounds or more of insects a year. So esteemed is he in France for this almost unextinguishable appetite that it is illegal to kill one and anyone caught doing so is fined. This in spite of the fact that the soft fur is of commercial value in Europe where it is valued for its resistance to dirt and because of its black silky texture. These little skins were once in such great demand that the number of skins sold per year was around 6 million, mostly of the common European mole which has the black fur. It was used for trimming and for evening coats. An evening coat could take as many as nine hundred skins and was sometimes worn by royalty.

Although mole fur is found in various colors such as gray, brown or black, depending upon the species, the most unusual is probably that of a couple of varieties of African and water moles that gleam and glitter with iridescence. Common among birds, this is a rare thing among mammals.



L. Rue photo

Common mole, digging in.

Although it may come in various colors there is one thing that all mole fur has in common and that is that it has no set in any direction, thus it can never be rubbed the wrong way which is an advantage to a little animal that is always going either forward or backward in a little tunnel that just fits it. These tunnels are the result of his ravenous appetite. The insects he finds in these diggings are so important to his welfare that if he is forced to go without food for even a few hours he will die of starvation.

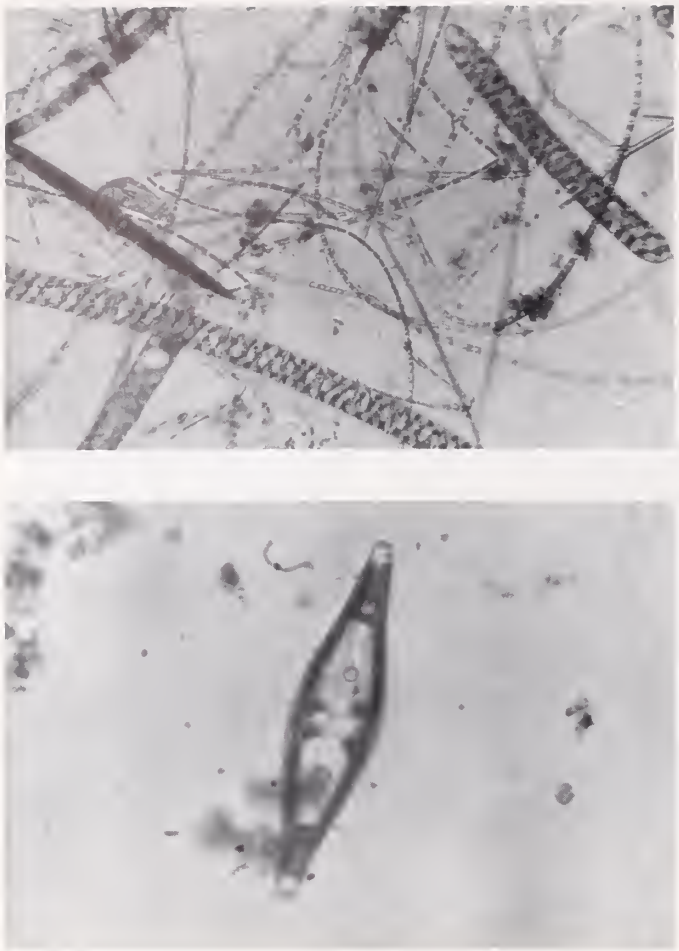
Although his extensive tunnels can be a source of complaint, they do sometimes benefit man as they serve to aerate the soil, bring subsoil to the top where it is mixed with humus, and aid in the draining off of excess water.

His never ending tunnels never cease to be a source of amazement to man. The noted naturalist Dr. Robert Hegner once observed a mole dig a tunnel 68 feet long in 25 hours and another 300 feet long in a single night. From these figures he then estimated that "to do a proportionate amount of digging a man would have to make a tunnel fifty miles long and large enough for him to crawl through."

The mole's tunnels unfortunately are not always used just by the mole. Mice find them handy hideouts, not without some risk, however, since moles have been known to eat such intruders.

The mice are the ones that destroy the vegetables and bulbs for which the mole usually receives the blame.

Is this little lawn pest a friend or a foe? Well, that depends. Perhaps in a way the best answer is like the definition of a weed, which is "Any plant (even an orchid) which is growing where you don't want it."



To the water pollution biologist, a drop of water is alive with many small plants and animals (filamentous algae magnified 100 times, top; a single plankton type of algae magnified 400 times, bottom).

WATER-DWELLING ANIMALS (Continued from page 5)

from similar samples from other areas of the stream. As the biologist interprets this data, he adds important facts to the message being sent by the tiny animals in the stream.

In an effort to obtain still more information, the biologist looks for signals from the animals at the top of the aquatic food chain—the fish. These "finny" creatures often send one message about water pollution that even the untrained eye can see and understand. That is a fish kill. In the United States last year, over forty million fish were reported killed by municipal, agricultural and industrial pollution. That's strong language.

But the biologist's job is to prevent fish kills. To do this, he must collect a few live fish from the stream. One popular mode of fish collection is the use of electric shock. With this procedure, the fish can be identified, weighed and counted and returned to the stream unharmed. Basically, an electrofishing rig is a flat bottom boat carrying a portable DC generator. Negative terminal wires are hung from the boat while the positive terminal, a copper hoop on the end of a long pole, is thrust in and around rocks, brush piles, and other fish shelters. Shocked fish rise to the surface, are netted and placed in tanks, and returned to shore for study. In this case, the standard unit of measure is time. Shocking is conducted for the same amount of time at each station. The numbers, kinds and weights of fish collected during the standard length of time are tabulated. These figures are then compared with other stations on the same stream to determine whether the fish population has changed appreciably from station to station. From comparisons such as this, predictions can be made relative to the cleanliness of the water.

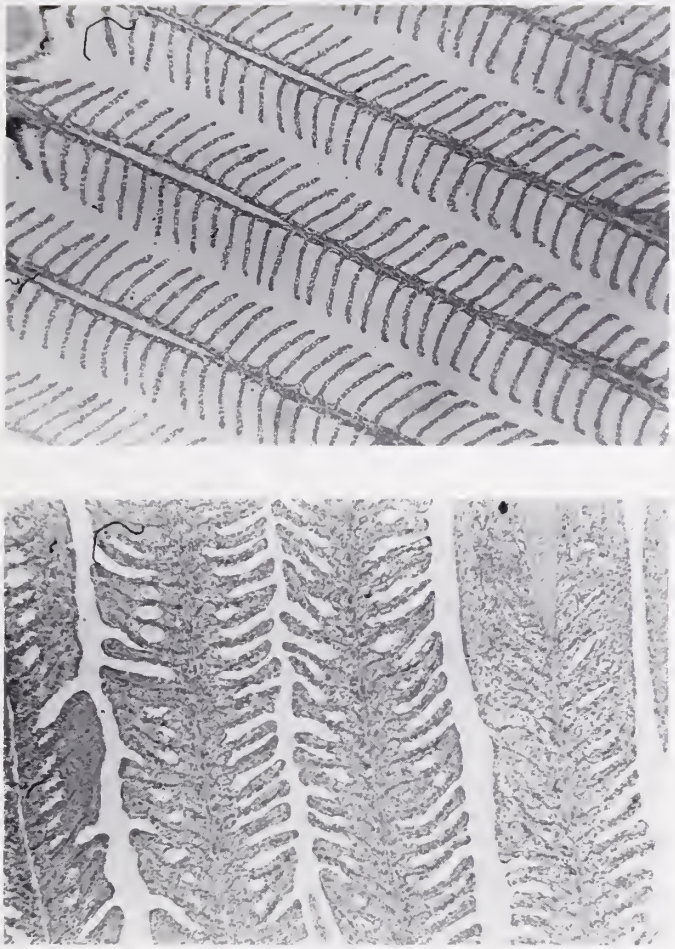
Because of their great mobility, fish are not as reliable indicator organisms as are the algae or invertebrates. However, it is generally agreed that the darters, shiners, and dace are clean water fish. Bass and sunfish are classed as intermediately tolerant to degraded conditions while the carp seems to thrive well in polluted waters. To correctly interpret this portion of the message, the biologist must remember that it is the absence, not the presence, of these groups which is important. For instance, the darters and dace, pollution sensitive species, are not usually present in polluted water while the carp can be found in all types of water conditions.

The fish population of a stream has another means of communication which is of importance to the biologist. This is a kind of early warning system which alerts the biologist to problems when they are just beginning. The early warning system is the state of health of the fish. Using methods of examination borrowed from your family doctor, the biologist can study a fish's health. When a person visits the doctor for a checkup, the doctor conducts many tests to determine whether that person's health is being affected by any stress. Similarly, the water pollution biologist can determine by a fish's health whether the fish population is being affected by disease, pollution or environmental stresses.

Hematology is the study of blood. Since stresses on the fish's body are often accompanied by changes in the blood, hematology is a useful tool in deciphering messages sent by this segment of the early warning system. Scientific research has shown that poisons in very small concentrations may cause harmful alterations in the fish's blood. By studying the blood plasma and the red and white blood cells, the biologist can see these changes and identify the presence of a stress on the fish population long before the effects of the contaminant manifest themselves in the form of a fish kill.

Histology is the study of the cellular structure of tissues. As with blood, external stresses can cause changes in the structure of a fish's body organs. In many cases, the nature of the pollutant can be determined by the type of

Two tools of the water pollution biologist (Eckman dredge, left; Surber Sampler, right).



Studying the cellular structure of the fish gill, tells the biologist how the pollutant is affecting the fish. (Top, microscopic structure of a normal fish gill; bottom, structure of a gill affected by certain kinds of pollution.)

change it causes within the organs. With special preparation of the tissues and microscopic examination, the biologist can see these alterations. The gills, being directly exposed to the environment, are especially good for early warnings. Different pollutants affect the gills in different ways and, by their varying microscopic structure, the gills actually record the effect of the stresses imposed upon them. In this way, the biologist determines whether a pollutant has entered the stream and whether it is having a deleterious effect on the fish population.

The biologist has asked the "critters" many questions. Now, he must translate the answers into a message that people can understand. But the biological information is only part of the water pollution story, and he must also gather supporting chemical and physical data. In fact, all three sciences must be blended if he is to understand the complexities of the aquatic environment.

However, there are several occasions when the biological message is the most important way of determining the true story. For example, suppose a "slug" of industrial waste enters the water. This damaging slug usually travels down the stream in a unit and, through dilution, soon vanishes. Water samples are usually collected after the slug has passed. Hence, the chemical analysis shows the water to be normal. But, as we have seen, the sick and dead animals remain to tell the tale.

A "chronic condition" is another situation where the biota of a stream is most knowledgeable. Here, a contaminant, while being chemically detectable, is found in such low concentrations that it is thought to cause no harm. However, constant exposure to the contaminant may cause reduced growth and reproduction rates. Also, fish weakened in this manner are more susceptible to disease and other natural stresses.

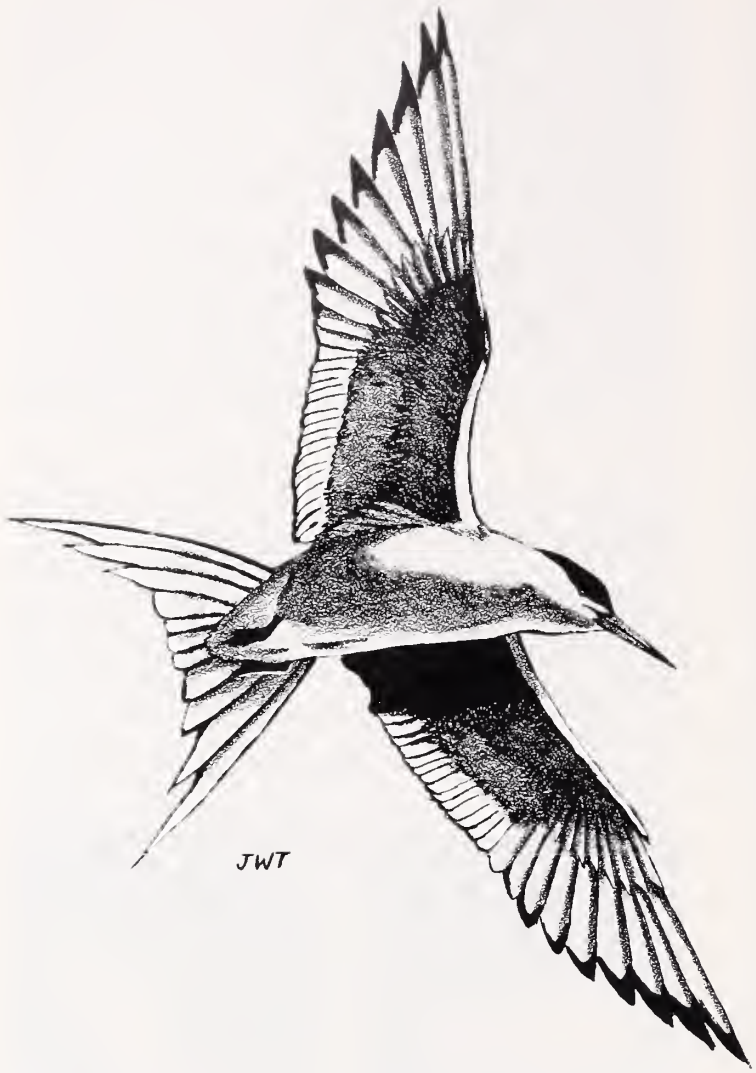
Another situation is the much publicized phenomenon of "biological magnification." This is a state where a contaminant, such as DDT or mercury, is chemically detectable in small amounts in the water but with increased concentrations through the food chain, accumulates in large amounts in the animals at the top of the chain. These large concentrations may cause poor health, reduced reproduction, or death.

A "synergistic action" between two contaminants is yet another case where a biological investigation is of great value. This is a condition where both contaminants are found chemically to be in concentrations below those which cause harm. Yet, acting together, the toxic effect is great and often lethal.

Have the water-dwelling animals made their point? They *can* tell us much about the condition under which they live. With a little practice, you too can learn to read some of the signals. At any rate, they *are* speaking out for clean water and against water pollution. Are you?

The water pollution biologist gets interesting information from the fish. (Crappie, left; hog sucker, right.)

Some aquatic insect larvae crawl from the water, shed the larval skin, and fly away as the adult form (adult dragonfly drying its wings after shedding its larval skin which is left clinging to the reed stem).



Bird of the Month:

The Common Tern

By John W. Taylor
Edgewater, Maryland

TERNS are surely the most graceful of all the seabirds. Their small, frail bodies are borne effortlessly on slender wings and forked, pointed tails. To watch them execute aerial maneuvers, gliding, darting, tumbling, hovering, and diving, is a source of delight and wonder.

Characteristically, they fly low, scanning the water with head pointed downward. When prey is sighted, the tern rises a bit to take aim, and then drops vertically into the water with closed wings. The body knifes into the water, and usually disappears beneath the surface. It emerges a moment later, usually with a wiggling fish in its bill, and with a dainty, shivering motion, shakes the water off its plumage.

The common tern is the most widespread of its family, its breeding range encompassing the entire northern hemisphere. In Virginia, however, its distribution is somewhat irregular, due primarily to destruction of nesting habitat, and other human interference. This species nests on open sandy beaches—at the height of the vacation season—and is thus subject to constant disturbance by yachtsmen, beachcombers and picnickers. Even when there is no intent to harm, the birds may be kept off the eggs and young long enough for the summer sun to kill them.

Most of the present colonies are on remote islands, where the birds enjoy some security, but such spots are scarce nowadays, and the increasing number of boaters makes even these locations highly vulnerable. There is some recent evidence that these terns are beginning to use *marshy* islands, where there is some cover, on which to nest, and their success in the future may depend largely on their ability to adapt to new conditions. (The plight of the terns is a strong argument for the establishment of conservation areas which consider first the welfare of wildlife, rather than cater to increased use by people.)

When nesting activities are completed, the common tern wanders widely, and individuals may turn up far from tidewater. In fact, during this period, they may turn up anywhere in the state, on even the smallest body of water.

Identification of the common tern is not easy, especially for the inexperienced. Two other Virginia terns closely resemble it, and one must know which field marks to look for. To distinguish it from the Forster's tern, also regularly seen throughout Virginia's tidewaters, look at the color of the primaries (outer wing feathers). If they are darker than the rest of the wing, it is a common tern; if lighter than the rest of the wing, your bird is a Forster's. The roseate tern, also very similar in coloration, but which is of rare occurence hereabouts, may be recognized by its bill, which is generally blackish (as opposed to the red bill of the common). Another mark to look for in the roseate is the deeply forked tail, extending far behind the wing tips when the bird is at rest. (In the common, this is reversed; the wings extend beyond the tail.)

ON THE LIGHTER SIDE

By TONY PHOENIX

PANTHERS, GHOSTS AND CARP FISHING

THINGS got off to a bad start.

First of all, my mother didn't want to let me go and that took more begging, crying and promising to do future work than I would have liked.

Second, the dog wouldn't stay home. No amount of hollering, arm-waving or rock throwing would drive him more than 50 yards behind us. So we finally had to forget about him and start walking down the dusty summer road with our cane poles in our hands.

But now we were on our way. A trip to Paris wouldn't have held the promise of more excitement than this one did.

You see, we were going fishing. No fancy fishing, either. Just plain boy-man fishing, when summer days were longer than they are now and the only gear we needed was three or four cane poles rigged with line and hook.

On this day we also had a big wad of sourdough wrapped in wax paper, because Elmer reckoned the carp would be biting.

Part of the trouble of getting to go fishing had been Elmer. My mother wasn't sure about him. While he didn't work regular, he did manage to hunt and fish a lot.

He said he did it to eat, and he told the truth. But a lot of people thought it would have been more honorable (but not easier) to make a living like they did, grubbing on a little farm or working in a nearby textile mill. Elmer disagreed, and though he never got into heated arguments with anyone about the things they said about him, he showed his contempt by going fishing.

There was another thing that made him suspect. He could be prodded into profanity. Not at people, mind you. He didn't cuss people, although he didn't really fit too well with most of them.

But he could turn the air blue along a riverbank when a big carp or catfish took his bait and kept going with it, leaving him with only a broken line and a piece of cane pole in his hand.

But none of this was important to a boy on a summer day. The important thing was that Elmer and I were going fishing, down where the creek ran into the river. He was "purty darn shore" that some of the big carp that rooted under the old submerged logs at the mouth of the creek would be interested in his latest batch of sourdough.

"You have to be real easy with carp, boy," he was telling me. "Their mouth is soft and the hook pulls right out. They're not very smart, either. They'll bite. Don't worry; they'll bite."

Not very smart, did he say? A fish smart? I hadn't thought about it that way. I tried to think about it after we'd squeezed a wad of dough onto our hooks and thrown them out into the mouth of the creek. But it was hard to do any heavy thinking around Elmer. He talked a lot, but it was the kind of talking that a boy likes to hear.

He would tell of nighttime coon hunts in parts of the country I'd never seen, and about how to find young skunks in the spring and make pets of them. He was the first person to prove to me that groundhogs can climb trees. He also had a scary story or two about hearing what he thought were panther screams many years ago along the Holston River in southwest Virginia.

"I allus did say it sounded exactly like a woman screaming," he would add.

As the sun began to go down, he told about the bitter winter as a boy when snow lay deep for weeks and something—he thought it was a panther—tried to get through the roof of the house to the food (or maybe people) below.

Then there was the story of the man who rode a horse up and down the dark river road on certain moonless nights.

"You had to get close to see, but that rascal didn't have no head," the old windbag confided. (Since I'm sure that he'd never read *The Legend of Sleepy Hollow*, I think now that what he told me was pure folklore—or truth.)

The hair would stand up on the back of my neck. I shivered in the warm summer evening—and enjoyed every word of it.

But back to our fishing. We weren't doing so hot on this particular day. We had only two carp, and we'd get an occasional nibble. No matter. I was enjoying the tall tales, so the fish weren't all that important.

He was right in the middle of telling me about the night something had jumped at him along the river road ("probably a wildcat," he said) when a commotion beside us stopped him in midsentence.

It was my dog—the one we'd tried to chase home. A big spotted dog, good for nothing but—well—eating sourdough, which is exactly what he was doing at the moment.

More than half the carp bait was gone when Elmer made a lunge for him. Naturally the dog ran off through the cornfield with the other half.

In the ruckus, Elmer kicked over the stick we'd tied our fish to. A couple of lazy sweeps of their tails, and they were gone.

So there we stood, our bait stolen by a worthless dog and our small catch of fish lost through a misplaced kick.

In his own inimitable style, Elmer turned the air blue.

We gathered up our cane poles and headed home in the summer dusk. I suppose Elmer wrote it off as a bad day.

But I never forgot it.

Edited by HARRY GILLAM

Game-Fish Laws Have New Look

The Commission's annual publications, "Summary of Virginia Game Laws" and "Summary of Virginia Fish Laws" have been completely re-designed and dressed up with color in an effort to make them more attractive, more interesting and easier to understand. The fish law folder remains basically the same size but is reorganized and color keyed to make information easier to find. A colored map helps point out areas with unusual local fishing regulations.

The game law pamphlet has been reworked into a large fold-out sheet with color-keyed maps showing hunting seasons and limits for the various counties at a glance. Full color pictures of the game animals and birds help the sportsman locate regulations on the different species. The format includes 28 pages in place of the former 24, making room for larger maps and type that is easier to read.

The folders are available from all license agents and from most stores that handle sporting goods. If your local source does not have them, ask your game warden or write to the Commission's Richmond office.

Northern Virginia B.A.S.S. Chapter Formed

A group of Northern Virginia fishermen have banded together to form a Northern Virginia Bassmasters club, an affiliate of the Bass Anglers Sportsmen Society of America (B.A.S.S.) headquartered in Alabama. The national organization has been in the forefront in the fight against pollution, filing suit against 241 companies in one instance for violating the 1899 refuse act. The Northern Virginia affiliate plans to fight for some improvement in local waters.

Officers elected at the first meeting include Robert J. Parcelles, Jr., President; Larry W. Singleton and Michael Toliver, Vice Presidents; and John Smith, Secretary-Treasurer. For the younger fisherman the club has a junior organization open to all boys between 11 and 19 years of age. For more information on membership, phone Bob Parcelles at 273-3783 or 273-2905 or Mick Toliver at 591-4122 or 920-8133.

Amherst Trophy

Jack Wall of Lynchburg downed this fine 11 point buck on opening day in Amherst county. He nailed it at 100 yards with his 30-06.

Father and Daughter Catch Fine Philpott Trout

J. Clifford Ramsey and his daughter, Mrs. Joe Ann Washburn, both of Bassett, landed these brown trout while fishing in Philpott Reservoir. Mr. Ramsey's weighed 9 pounds 12 ounces and measured 32 inches while Mrs. Washburn's weighed 4 pounds 14 ounces and measured 29½ inches.

New Record White Bass from Smith Mountain

White bass stocked by the Game Commission in Smith Mountain Lake are apparently thriving as evidenced by this new state record caught by Mrs. Joan Fisher of Oxen Hill, Maryland. The fish weighed 3 pounds 6 ounces, beating the old record by three ounces. A lot more white bass action is in store for Smith Mountain anglers as these fish multiply.

Orange Lake Bass

This 6 pounder was taken from the Game Commission's Lake Orange by Garland Ray, local drug store manager.

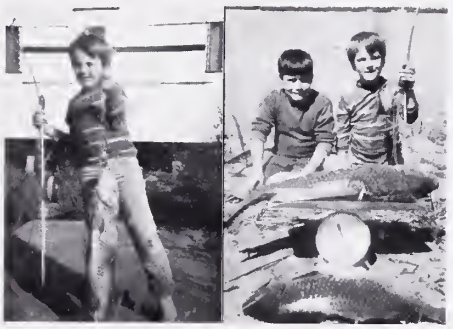
Occoquan Largemouth

This 6 pound 3½ ounce largemouth went for a shiner minnow dangled in the Occoquan River by David Gay of Fairfax.

Edited by ANN PILCHER

Research *Can* Be Fun

Photos by R. Corning



Vincent aims for the carp . . . lands a big one . . . and shares the camera spotlight with 2nd grader Clyde Abernathy, Jr., son of the Hog Island Refuge Supervisor.

Each year about mid-May carp travel from the James River into the ponds at Hog Island (Waterfowl) Refuge to spawn. Fish Management Field Coordinator Ray Corning decided to do some work in stripping eggs from female carp and artificially fertilizing them with sperm taken from males. His son assisted with this project by "bringing in" the fish.

Over the weekend of May 22 and 23, using a Bear "Red Fox" 20 lb. Fiberglas bow, 5-year-old Vincent Corning bow fished for the first time since he began target practice almost a year ago. His accurate shooting and the 90 lb. line running from the reel of his bow helped Vincent land 6 carp, ranging in weight from 5 to 13 pounds. Although the kindergartner's largest fish lacked 7 pounds of being eligible for a Virginia Freshwater Fish Citation, both Cornings felt the bow fishing trip might well be termed a success.

Coyotes Caused Consternation

Courtesy *Rural Living* magazine and *Powell Valley News*

For several months residents of the Hickory Flats and Rt. 58 communities near Pennington Gap had complained of seeing and hearing animals they thought were coyotes. Loss of poultry and possibly a calf or so (although the actual predators were unidentified), the nightly songs of coyotes plus the occasional sight of these elusive creatures caused much concern among many of the families of the area. Citizens offered a $55 reward to the first person to kill one of these predators. On November 16, on the Frank Litton farm, 13-year-old Jay Ball, Jr., of the Route 58 community, brought down the 30 to 35 pound coyote, he holds at right. The animal was near several cattle. Jay used buckshot in a 12 gauge shotgun.

Jay Ball and his November coyote kill.

New Gun Worked Fine

Last December Ricky Vaughan of Ashland received a gun for his 12th birthday. A couple of months later, while hunting in Hanover County with his father, Ricky shot the gun for the first time, bringing down a 6 point buck. It was his third deer hunting trip.

Posters, Then Plantings

Wildlife conservation poster winners receiving their *Virginia Wildlife* cover reprint awards from Michael Kitts, 4-H Club leader and principal of Otterburn Elementary School, are Vicki Funk, Dawn Sealock and Derek Reel.

In May Mr. Edward M. Conklin, III, Warren County Extension Agent, reported that 4-H'ers at the Otterburn Elementary School (near Front Royal) were "learning by doing" through their wildlife project. They sponsored a wildlife conservation poster contest, then began work on a small wildlife refuge—planting pine seedlings to provide cover and a game bird seed mixture for food supply. The plot is located beside a pond, on land adjoining the school property, where boys and girls visited it often. The children hoped to learn first-hand of wild animal habits, and how they can take an active role in improving environmental quality.

After-school Trapline Yield

Chester resident David Gates and another teenager, Dondi Shearer, tended a trapline after school, ending last season with an impressive catch: 3 beaver, 161 muskrats, 2 foxes, 1 mink, 3 skunks, 3 coons, and 7 opossum. Part of the catch is displayed below.

ON THE WATERFRONT

Edited by JIM KERRICK

Water Skiing From Six To Sixty

Kiekhaefer Corp. photo

Water-skiing is a sport which has a certain set of pre-requisites to be followed if you are to get the most out of it. While the ultimate result is lots of fun, in order to enjoy it to its fullest you must know what makes it enjoyable.

Anyone can water-ski. Unlike regular skiing, or most other recreational activities, water-skiing can be enjoyed by almost anyone, whether six years old or sixty. And the wonderful thing about the sport is that from the beginning, you can have just as much fun as the champions do. The reason is that water-skiing is one of those sports with a definite plateau of accomplishment. It is very easy to get up on skis and get dragged around the lake. It is that much harder to advance to a slalom ski, and that much harder again to get to where you are skiing competitively. But, in the meantime, at even the primary level, you will get a tremendous sense of accomplishment out of it.

Water-skiing looks a lot harder than it is. If you learn the basic principles of the sport, you can ski acceptably almost from the beginning. Good habits, learned early, will pay off in safe fun and pleasure later on.

First, no matter how good a swimmer you are, as you are learning, wear a ski-belt. For one thing, it will be a lot easier to learn if you don't have to flounder around in the water while you are getting set.

Once you do get up on skis, you may find that you will zip all over the lake with no trouble at all until you stop, at which point you will discover that activating a lot of muscles you haven't stirred for some time will leave you quite a bit more tired than you had anticipated. That's when a ski belt is invaluable.

You should always go skiing with someone else besides the driver in the boat. The driver has to look ahead so he won't drive over somebody's mooring, or another boat. Having a person looking back will be reassuring, and if you dump in the water the observer will insure the boat turning around and coming back to fetch you that much sooner. It's kind of a sinking feeling to let go of the tow rope, settle gently into the water, and watch the boat proceed merrily across the lake without you.

To help you communicate with the observer in the cockpit of the tow boat, there are a few basic hand signals which you must know. Knowing them, it's a simple matter to have your every wish known instantly without having to try and be heard over the roar of the engine.

Starting out, the standard signal is both audio and visual. When you are ready to go, the standard command is "Hit it!" This may be augmented by a thumb's up signal. In either case, it will get you started on your way. In like manner, when you want to stop, taking one hand and drawing it across your throat will serve notice that you want power cut.

While skiing, if you want to go faster, extend one arm out, with the palm up and make an upward motion. If you want to slow down, make the motion with palm downward. The thumb and forefinger circle is the universal sign that everything's perfect. If you want to head back towards the dock, extend your arm over your head, make a circular motion, and point towards where you want to go. If you have been running a course and want to make one more lap, make the circular motion without pointing.

The most important of all hand signals, however, is the one that you give when you fall. In every case, if you lose your balance and end up in the water, if you are all right raise one arm up in the air immediately. This will tell the tow boat that although you have fallen, everything is OK and you're not injured. Likewise, if you are driving the boat and a fallen skier does not give you the raised arm sign, get back to him as quickly as possible.

Skiing signals. From top, left to right: everything's perfect; ready to go; want to stop; want to slow down; after falling, everything's all right; and want to go back towards dock.

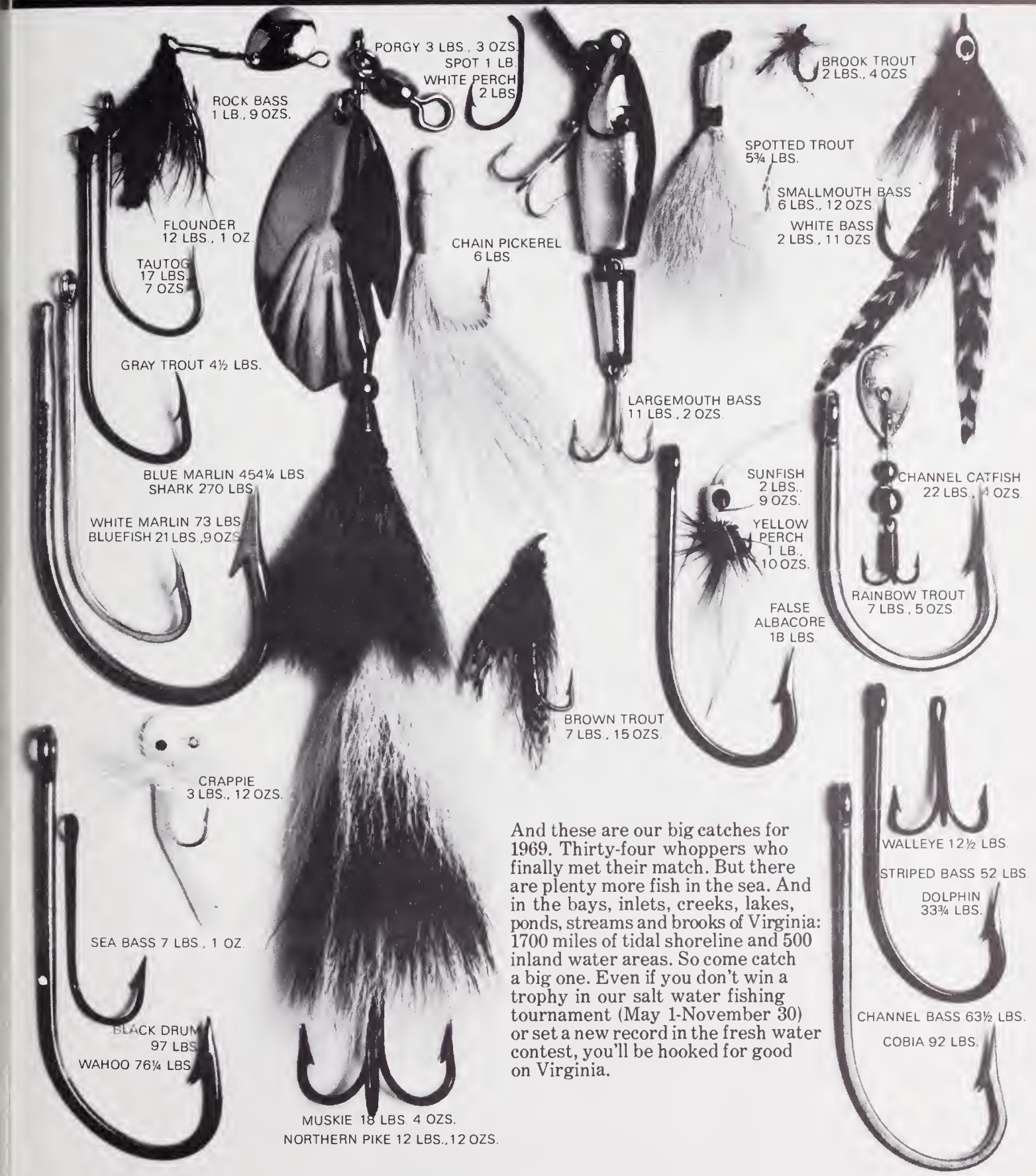
Photos courtesy Kiekhaefer Corp.

By following such simple rules and procedures, you will be assured of having a safe as well as enjoyable time water skiing.

There are other rules, but they are more a matter of common courtesy than anything else. For instance, don't ski too close to anchored fishermen. Another thing to watch out for is fishing boats that are trolling lines off the stern.

If you are skiing off the shore, when you return, approach as nearly parallel to the beach as possible. Whatever you do, don't approach at a right angle. When you are being pulled by a boat, you build up quite a bit of inertial force. If you make a grand landing, straight in to the shore, you may find that the ski stops, but you don't when the keel digs into the sand.

In a fisherman's paradise like Virginia, there's got to be a catch.


PORGY 3 LBS., 3 OZS.
SPOT 1 LB.
WHITE PERCH 2 LBS.
ROCK BASS 1 LB., 9 OZS.
BROOK TROUT 2 LBS., 4 OZS.
SPOTTED TROUT 5¾ LBS.
SMALLMOUTH BASS 6 LBS., 12 OZS.
WHITE BASS 2 LBS., 11 OZS.
FLOUNDER 12 LBS., 1 OZ.
CHAIN PICKEREL 6 LBS.
TAUTOG 17 LBS., 7 OZS.
GRAY TROUT 4½ LBS.
LARGEMOUTH BASS 11 LBS., 2 OZS.
BLUE MARLIN 454¼ LBS.
SHARK 270 LBS.
SUNFISH 2 LBS., 9 OZS.
CHANNEL CATFISH 22 LBS., 4 OZS.
WHITE MARLIN 73 LBS.
BLUEFISH 21 LBS., 9 OZS.
YELLOW PERCH 1 LB., 10 OZS.
RAINBOW TROUT 7 LBS., 5 OZS.
FALSE ALBACORE 1B LBS.
BROWN TROUT 7 LBS., 15 OZS.
CRAPPIE 3 LBS., 12 OZS.
WALLEYE 12½ LBS.
STRIPED BASS 52 LBS.
DOLPHIN 33¾ LBS.
SEA BASS 7 LBS., 1 OZ.
CHANNEL BASS 63½ LBS.
BLACK DRUM 97 LBS.
COBIA 92 LBS.
WAHOO 76¼ LBS.
MUSKIE 18 LBS. 4 OZS.
NORTHERN PIKE 12 LBS., 12 OZS.

And these are our big catches for 1969. Thirty-four whoppers who finally met their match. But there are plenty more fish in the sea. And in the bays, inlets, creeks, lakes, ponds, streams and brooks of Virginia: 1700 miles of tidal shoreline and 500 inland water areas. So come catch a big one. Even if you don't win a trophy in our salt water fishing tournament (May 1-November 30) or set a new record in the fresh water contest, you'll be hooked for good on Virginia.

Visit, write or call VIRGINIA STATE TRAVEL SERVICE, 9th & Grace Streets, Richmond 23219, phone (703) 770-4484

Smallmouth

Coarse gravel or a rocky spot in clean waters is selected as a spawning site. This bass prefers cold lakes and rivers and does not do well in farm ponds.

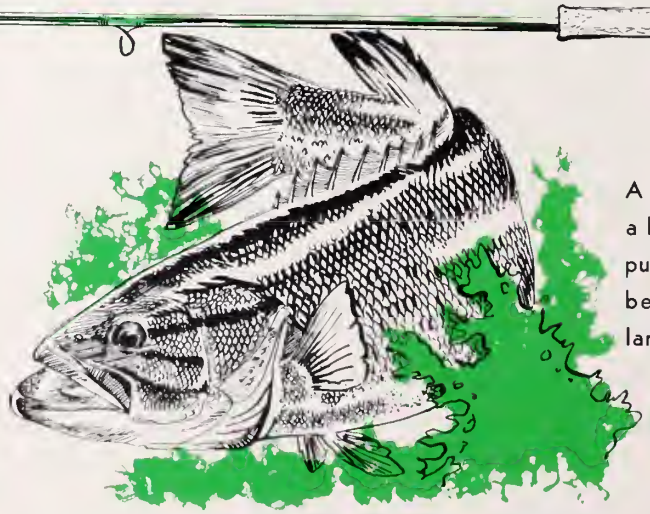
The smallmouth has blotchy, vertical bars while the largemouth is marked with a dark band on its mid side.

SMALLMOUTH FOODS

Minnows | Crayfish | Salamanders

Smallmouth Tackle

LURES



A four-pound smallmouth is a big one. They hit hard and put up a spirited fight—often better than that of their largemouth cousins.